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76  
12/30/02

TRANSMITTAL LETTER			Case No. 10544-169
Serial No. 10/035,025	Filing Date December 28, 2002	Examiner Not Assigned	Group Art Unit 2882
Inventor(s) VLADIMIR V. PROTOPOV			
Title of Invention DARK-FIELD PHASE CONTRAST IMAGING			

TO THE COMMISSIONER FOR PATENTS

Transmitted herewith is Information Disclosure Statement (in dup), PTO 1449, 111 cited references and return post card.

- ☐ Small entity status of this application under 37 CFR § 1.27 has been established by verified statement previously submitted.
- ☐ Applicant claims small entity status. See 37 CFR 1.27.
- ☐ Petition for a \_\_\_\_\_ month extension of time.
- ☒ No additional fee is required.
- ☐ The fee has been calculated as shown below:

	Claims Remaining After Amendment		Highest No. Previously Paid For	Present Extra
Total		Minus		
Indep.		Minus		
First Presentation of Multiple Dep. Claim				

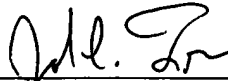
Small Entity	
Rate	Add'l Fee
x \$9 =	
x 42 =	
+ \$140 =	
Total add'l fee	\$

or

Other Than Small Entity	
Rate	Add'l Fee
x \$18 =	
x \$84 =	
+ \$280 =	
Total add'l fee	\$

- ☐ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of \$ \_\_\_\_\_. A duplicate copy of this sheet is enclosed.
- ☐ A check in the amount of \$ \_\_\_\_\_ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this communication or credit any overpayment to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.
- ☒ I hereby petition under 37 CFR § 1.136(a) for any extension of time required to ensure that this paper is timely filed. Please charge any associated fees which have not otherwise been paid to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

  
John C. Freeman  
Registration No. 34,483  
Attorney for Applicant

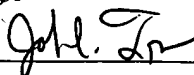
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Name of Registered Representative:

John C. Freeman  
John C. Freeman, Reg. No. 34,483

December 18, 2002  
Date of Signature

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PATENT  
CASE NO. 10544/169

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application: )  
)  
Vladimir Protopov )  
) Group Art Unit: 2882  
Serial No.: 10/035,025 )  
) Examiner: unassigned  
Filed: December 28, 2001 )  
)  
For: DARK-FIELD PHASE )  
CONTRAST IMAGING )

**INFORMATION DISCLOSURE STATEMENT**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

In compliance with Applicant's duty of disclosure under 37 C.F.R. § 1.56 and in conformance with 37 C.F.R. §§ 1.97-1.98, Applicant hereby submits the following references for consideration by the Examiner. Copies of the references are enclosed along with a completed copy of Form PTO-1449.

**I. DISCLOSURE**

**A. U.S. Patents**

<b><u>Patent No.</u></b>	<b><u>Inventor</u></b>	<b><u>Issue Date</u></b>
2,853,617	Berremman	09/23/58
3,032,656	Hosemann et al.	05/01/62
3,409,372	Ricken	11/05/68
3,614,425	Yoshimatsu	10/19/71
3,899,253	Overhoff	08/12/75
3,927,319	Wittry	12/16/75
4,274,000	Goebel	06/16/81
4,364,122	Wolfel et al.	12/14/82
4,461,018	Ice et al.	07/17/84
4,525,853	Keem et al.	06/25/85
4,547,801	Haisma et al.	10/15/85
4,599,741	Wittry	07/08/86
4,611,341	Brody	09/09/86
4,643,951	Keem et al.	02/17/87
4,675,889	Wood et al.	06/23/87
4,684,565	Abeles et al.	08/04/87
4,693,933	Keem et al.	09/15/87
4,716,083	Eichen et al.	12/29/87
4,717,632	Keem et al.	01/05/88

<u>Patent No.</u>	<u>Inventor</u>	<u>Issue Date</u>
4,724,169	Keem et al.	02/09/88
4,727,000	Ovshinsky et al.	02/23/88
4,741,620	Wickramasinghe	05/03/88
4,777,090	Ovshinsky et al.	10/11/88
4,783,374	Custer et al.	11/08/88
4,785,470	Wood et al.	11/15/88
4,867,785	Keem et al.	09/19/89
4,873,439	Hagelstein et al.	10/10/89
4,884,697	Takacs et al.	12/05/89
4,890,310	Umetani et al.	12/26/89
4,916,721	Carr et al.	04/10/90
4,928,294	Beard, Jr. et al.	05/22/90
4,953,188	Siegel et al.	08/28/90
4,969,175	Nelson et al.	11/06/90
5,016,267	Wilkins	01/25/00
5,082,621	Wood	01/21/92
5,162,872	Vanasse	11/10/92
5,167,912	Wood	12/01/92
5,173,928	Momose et al.	12/22/92
5,245,648	Kinney et al.	09/14/93
5,259,013	Kuriyama et al.	11/02/93

<u>Patent No.</u>	<u>Inventor</u>	<u>Issue Date</u>
5,319,694	Ingal et al.	06/07/94
5,384,817	Crowther et al.	01/24/95
5,406,609	Arai et al.	04/11/95
5,408,512	Kuwabara et al.	04/18/95
5,450,201	Katzir et al.	09/12/95
5,458,084	Thorne et al.	10/17/95
5,551,587	Keppel et al.	09/03/96
5,579,363	Ingal et al.	11/26/96
5,592,338	Citterio	01/07/97
5,638,175	Brunfeld et al.	06/10/97
5,646,976	Gutman	07/08/97
5,684,852	Tomie	11/04/97
5,715,291	Momose	02/03/98
5,732,120	Shoji et al.	03/24/98
5,757,882	Gutman	05/26/98
5,784,162	Cabib et al.	07/21/98
5,799,056	Gutman	08/25/98
5,802,137	Wilkins	09/01/98
5,850,425	Wilkins	12/15/98
5,878,108	Baba et al.	03/02/99
5,881,126	Momose	03/09/99

<b><u>Patent No.</u></b>	<b><u>Inventor</u></b>	<b><u>Issue Date</u></b>
5,898,752	Van Der Wal	04/27/99
5,914,997	Van Egeraat	06/22/99
5,930,325	Momose	07/27/99
5,936,255	Nakanishi et al.	08/10/99
5,987,095	Chapman et al.	11/16/99
6,014,423	Gutman et al.	01/11/00
6,018,564	Wilkins	01/25/00
6,018,565	Ergun et al.	01/25/00
6,021,223	Toyoda et al.	02/01/00
6,041,099	Gutman et al.	03/21/00
6,069,933	Schultz	05/30/00
6,069,934	Verman et al.	05/30/00
6,144,719	Hasegawa et al.	11/07/00
6,195,410 B1	Cash, Jr.	02/27/01
6,212,254 B1	Wilkins	04/03/01
6,226,349 B1	Schuster et al.	05/01/01
6,226,353 B1	Wilkins et al.	05/01/01
6,295,130 B1	Sun et al.	09/25/01
6,330,301 B1	Jiang	12/11/01
6,389,100 B1	Verman et al.	05/14/02
6,421,417 B1	Jiang et al.	07/16/02

## **B. Foreign Patent References**

<b><u>Reference No.</u></b>	<b><u>Country</u></b>	<b><u>Publication Date</u></b>
2 137 453 A	U.K.	10/03/84
2 203 620 A	U.K.	10/19/88
WO 88/08530	WIPO	11/03/88
02044088	Japan	11/01/91
0 274 155 B1	EP	03/18/92
0 623 817 A1	EP	11/09/94
WO 95/05725	WIPO	02/23/95

## **C. Literature**

1. Wayne T. Sproull, "X-Rays in Practice," McGraw-Hill Book Company, Inc., 1946, pp. 391-409.
2. "X-Ray Diffractometer for Thin Films," IBM Technical Disclosure Bulletin, May, 1969, pp. 1728-1729.
3. Leonid V. Azaroff, "X-Ray Spectroscopy", Published by McGraw-Hill Book Company, 1974, pp. 54-67 and 101-106.
4. "Measuring Tensions in Thin Film", IBM Technical Disclosure Bulletin, published by IBM, October 1974, pp. 1394-1395.
5. "Device for Automatic Recording of X-Ray Spectra", IBM Technical Disclosure Bulletin, published by IBM, July 1980, pp. 833-834.
6. "Use of Lithography to Subject Crystal Wafers to a Controlled Elastic or Plastic

Strain", IBM Technical Disclosure Bulletin, published by IBM, December 1985, pp. 3166-3167.

7. K.M. Podurets et al., "Neutron Radiography with Refraction Contrast" Physics B Vols. 156 & 157, 1989, p. 691.

8. V.V. Protopopov et al., "X-Ray Multilayer Mirrors With An Extended Angular Range," Optics Communications, Vol. 158, December 15, 1998, pp. 127-140.

9. V.V. Protopopov, "On the Possibility of X-Ray Refractive Radiography Using Multilayer Mirrors With Resonant Absorption," Optics Communications, Vol. 174, January 15, 2000, pp. 13-18.

10. English language abstract regarding Japanese published application no. 61-256243 that was published November 13, 1986, while the date of publication of the English language abstract is unknown it is believed to have occurred prior to March 1, 2000.

11. English language abstract regarding Japanese published application no. 63-53456 that was published March 7, 1988, while the date of publication of the English language abstract is unknown it is believed to have occurred prior to March 1, 2000.

12. English language abstract regarding Japanese published application no. 1-187440 that was published July 26, 1989, while the date of publication of the English language abstract is unknown it is believed to have occurred prior to March 1, 2000.

13. Richard Fitzgerald, "Phase-Sensitive X-Ray Imaging", Physics Today, July, 2000, pp. 23-26.

14. V.V. Protopopov et al., "Observation of X-Ray Refraction Contrast Using Multilayer Mirrors With Resonant Absorption," Optics Communications, Dispatch 17, August, 2000, pp. 1-6.



15. INSPEC Abstract Number A1999-18-8760J-017, B1999-09-7510P-044, available on or before February 8, 2001, 2 pages, regarding "Mammography Imaging Studies Using A Laue Crystal Analyzer," by Chapman et al., Review of Scientific Instruments Conference, Vol. 67, No. 9, September, 1996, p. 5.

16. INSPEC Abstract Number A9514-0785-044, B9508-7450-005, available on or before February 8, 2001, 2 pages, regarding "Backscattering Analyzer Geometry As A straightforward and Precise Method for Monochromator Characterization at Third-Generation Synchrotron-Radiation Sources," by Snigirev et al., Review of Scientific Instruments, Vol. 66, No. 2, Pt. 2, February, 1995, p. 2228.

17. INSPEC Abstract Number A9502-6110D-005, available on or before February 8, 2001, 2 pages, regarding "The Resolution Function of a Triple-Crystal Diffractometer for High-Energy Synchrotron Radiation in Nondispersive Laue Geometry," by Neumann et al., Journal of Applied Crystallography, Vol. 27, Pt. 6, December 1, 1994, pp. 1030-1038.

18. INSPEC Abstract Number A9223-0785-008, available on or before February 8, 2001, 1 page, regarding "Refraction Contrast in X-Ray Introscopy," by Somenkov et al., Zhurnal Tekhnicheskoi Fiziki, Vol. 61, No. 11, November, 1991, pp. 1309-1311.

19. INSPEC Abstract Number A9210-0785-020, available on or before February 8, 2001, 2 pages, regarding "Polarization Analysis in Magnetic X-Ray Scattering Using 45 Degrees Linearly Polarized X-Ray Incident Beam," by Mori et al., Review of Scientific Instruments, Vol. 63, No. 1, Pt. 11B, January, 1992, p. 1176.

20. INSPEC Abstract Number A9209-0785-045, available on or before February 8, 2001, 2 pages, regarding "Focusing Monochromator for High Energy Synchrotron Radiation," by

Suortti, P., Review of Scientific Instruments, Vol. 63, No. 1, Pt. 11B, January, 1992, pp. 942-945.

21. INSPEC Abstract Number A83081373, available on or before February 8, 2001, 2 pages, regarding "Use of a Position Sensitive Detector for Data Acquisition of Synchrotron X-Ray Diffraction from Adsorbed Gas Monolayers on Graphite," by Bohr et al., Nuclear Instruments and Methods in Physics Research, Vol. 208, Nos. 1-3, April 15, 1983, pp. 555-558.

**D. Pending Applications Assigned to Osmic, Inc.**

<b><u>Application No.</u></b>	<b><u>Inventor</u></b>	<b><u>Filing Date</u></b>
09/797,498	Martynov et al.	03/01/01

**II. DISCUSSION**

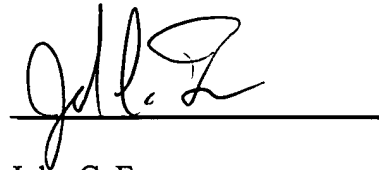
**A. Japanese Patent Reference No. 2-44088**

Based solely on the drawings and the attached English-language Abstract, the '088 patent reference is pertinent because it appears to disclose an x-ray fluorescent system where the incident angle is controlled.

**III. CONCLUSION**

It is believed that none of these references, alone or in combination, disclose or suggest the invention claimed. However, Applicants wish to make it clear that the disclosure of the above references is in no way an admission that they qualify as prior art. It is Applicants' desire, however, to have these references available in the record for both the Examiner and the public to see. Applicants therefore request that the Examiner review the entire disclosure of each reference and make the above-listed references of record.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "J.C. Freeman", is written over a horizontal line.

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Attorney for Applicants

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Dated: December 18, 2002